

# STRAVA - DATA ACCESS AND USES

August 31, 2016

Shaun Davis

Florida Dept. of Transportation

# AGENDA

## Training

- Accessing the Data
- Data Characteristics
- Potential Uses

## Question and Answer

# STRAVA VS. TRADITIONAL COUNTS

## Strava

- Wide coverage
- Segment of population

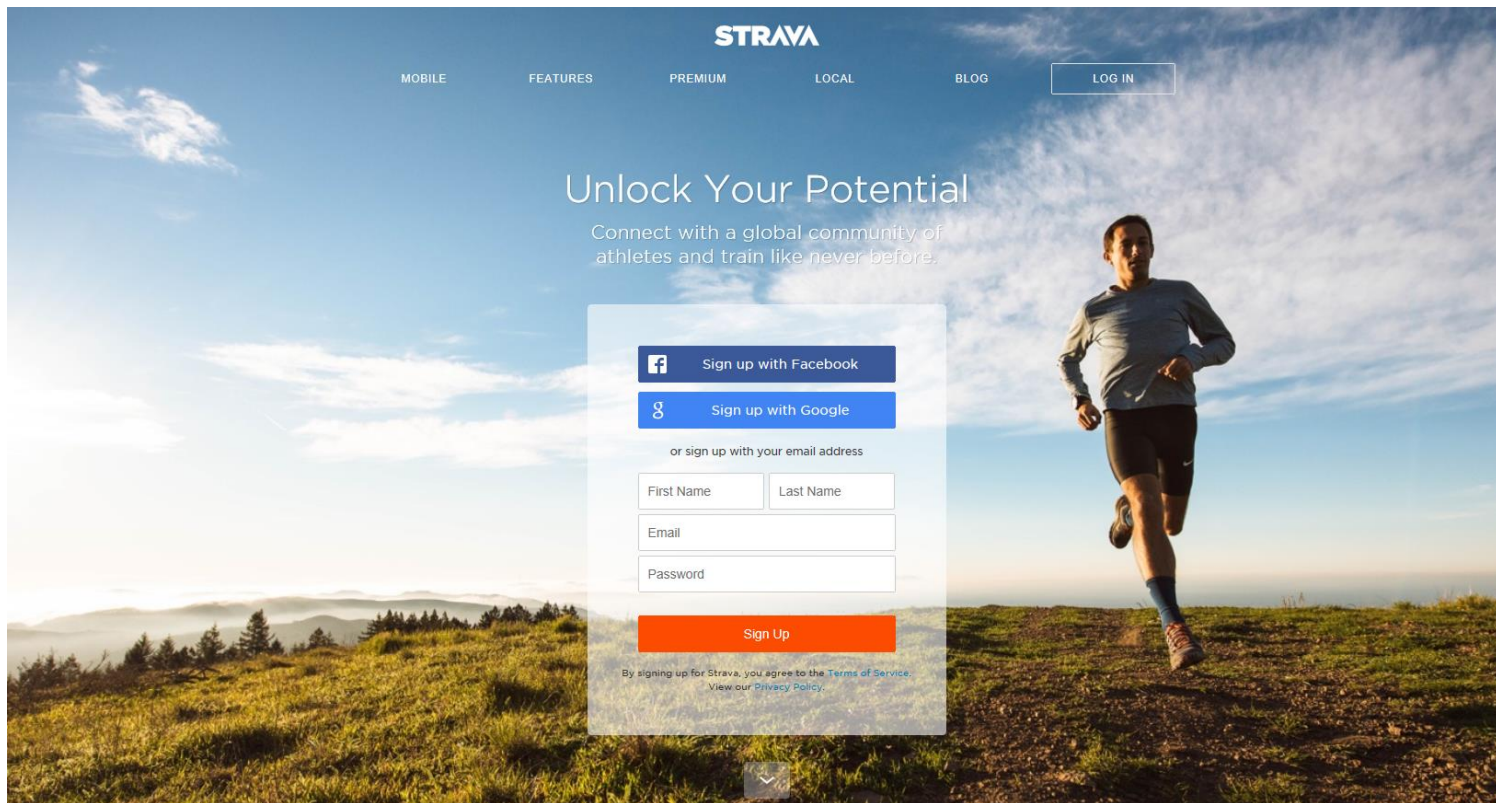
## In Person Surveys

- Multi-site coverage
- Segment of population

## Count Sites

- Narrow coverage
- Entire population

# TARGET AUDIENCE



# DATA ACCESS

## Who

- Governments and their contractors

## Where

- FDOT Unified Basemap Repository
  - FDOT Staff – <http://webapp01.dot.state.fl.us/unifiedbasemaprepository/>
  - Consultants / Contractors and Local Governments - <https://www3.dot.state.fl.us/unifiedbasemaprepository/>
- Strava Heat Map
  - <http://labs.strava.com/heatmap/>

# EXTERNAL ACCESS TO REPOSITORY

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### Unified Basemap Repository

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#### Mission

"To develop, deploy, and implement a unified base map resource that is seamless, universal, accessible, timely, and supportive of multiple member missions and visions."

#### History

The Florida Unified Roadway Basemap Initiative was conceived as a response to the 2005 SAFETEA-LU (Safe, Accountable, Flexible, and Efficient Transportation Equity Act –) emphasis on the coordination and sharing of information to support safety analyses. The most critical requirement resulting in a need for a uniform foundation for consistent data roads and identify the 5 percent of the worst safety problems regardless of roadway ownership. Every jurisdiction and agency use independent Geographic Information Systems to locate and analyze crash data along with roadway location and feature data. Spatial data is key to understanding not only safety information such as crash mapping, but also roadway characteristics and environmental impacts. Therefore, the requirement for a unified approach to GIS data management to support transportation decision-making was formed by the Florida Traffic Records Coordinating Committee (TRCC). Since that time, the project has been renamed to the Florida Unified Roadway Basemap Initiative. However, the project goal is to create a comprehensive transportation network that could be used throughout the State, shared across jurisdictional boundaries, through multi-agency involvement and coordination.

In March 2007, a feasibility study of the Unified Roadway Basemap initiative was completed and presented to the TRCC. This study consisted of a comprehensive survey of all entities that use the Basemap Initiative. A sample of the agencies receiving the survey included the Florida Department of Transportation, Florida Department of Health, Department of Highway Safety and Motor Vehicles, Florida Office of the State Courts Administrator, Florida Highway Patrol, and the Florida Office of Motor Carrier Compliance. All counties and large Metropolitan Planning Organizations were included. In addition, the GIS Task Team (subcommittee of TRCC) supplemented this list by recommending other entities to include on the recipient list. Results of the survey indicated that over 60 percent of respondents felt a comprehensive basemap would be extremely useful for their business processes.

Since the Feasibility study and extensive implementation planning, the TRCC has approved and purchased the licensed rights to all Florida Government the use of this data (please see license for more details).

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# CONTRACTOR ACCESS TO REPOSITORY

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# CREATING A REPOSITORY ACCOUNT

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# REPOSITORY ERROR MESSAGE

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Send an email to [CO-UBRAAdmin@dot.state.fl.us](mailto:CO-UBRAAdmin@dot.state.fl.us) to request authorization

# LEGAL REQUIREMENTS

## Data is proprietary

- Exempt from public records disclosure
- Working on public products

## Accessing Data

- Requires accepting user agreement
- Data must come from FDOT

## Metadata

## Credits

- 'Data Licensed from Strava' (user license term 3.2)

# DATA CHARACTERISTICS

## Summaries (segment and intersection)

- Yearly
  - Total
  - Weekday / Weekend
- Monthly
  - Weekday / Weekend
- Seasonal
  - Weekday / Weekend

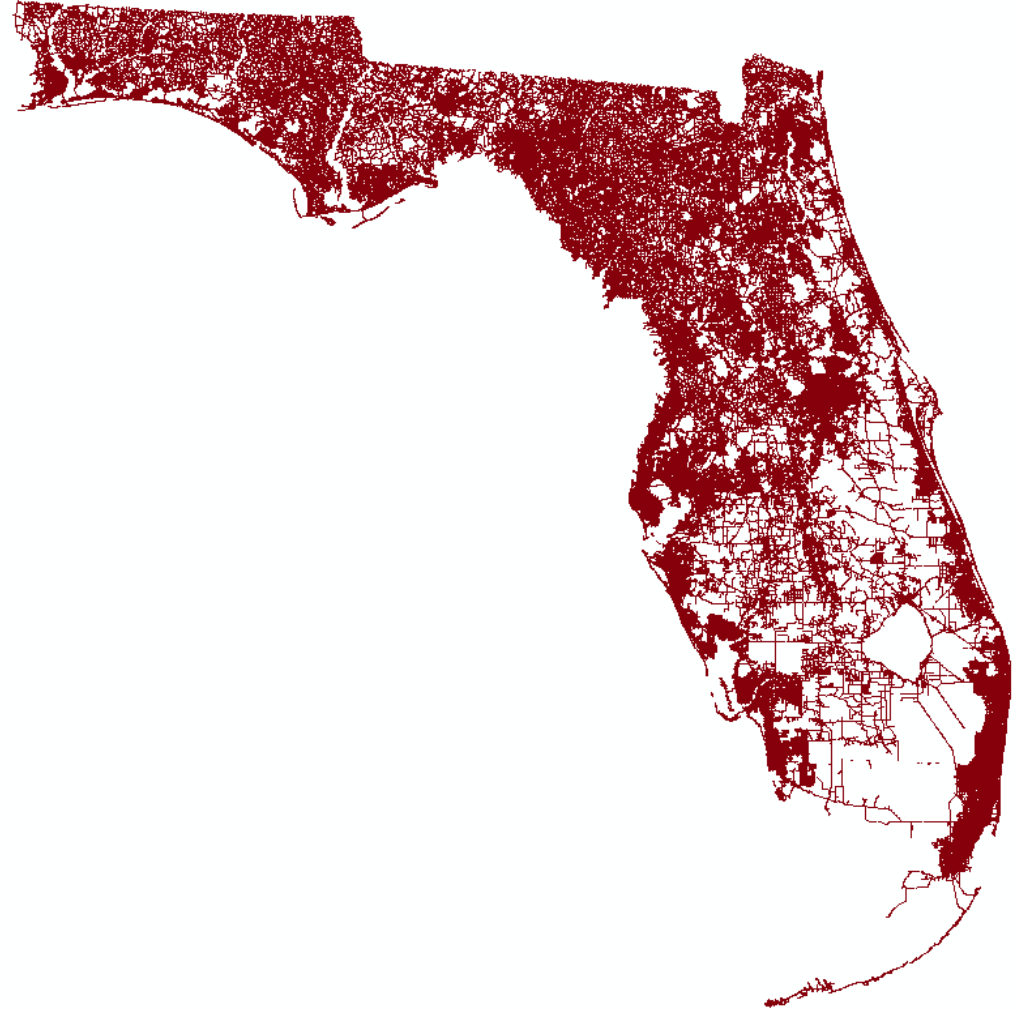
## Raw Data (segment, intersection + origin / destination)

- Minute scale for each segment and intersection
- Trip level for origin / destination

# STREET NETWORK

## HERE NAVSTREETS

- 1.7 million street segments for entire state
- Available through the UBR
- Attributes
  - Linked through LINK\_ID (HERE) / ID (Strava) fields
  - Street Name / Alternate Street Names
  - Functional classification (not FDOT / FHWA)
  - Travel Direction
  - Speed Category
  - Urban / Rural
  - Divided / Undivided
- Licensed product

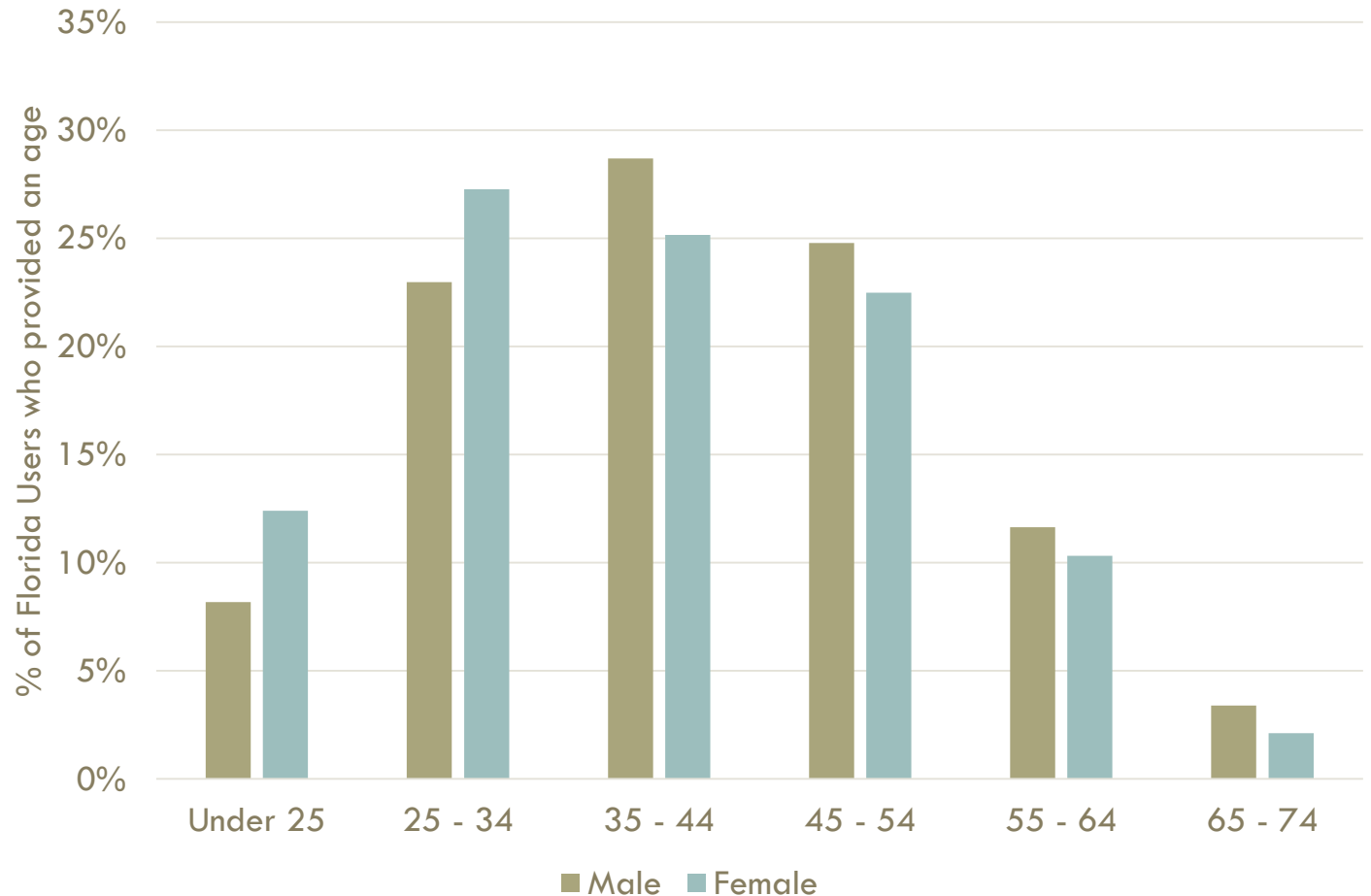


# RIDE DATA CHARACTERISTICS — 2015

## Ride

- 964,463 activities
- 14% Commute trips
- 19 mile median trip
- 1.5 hour median trip

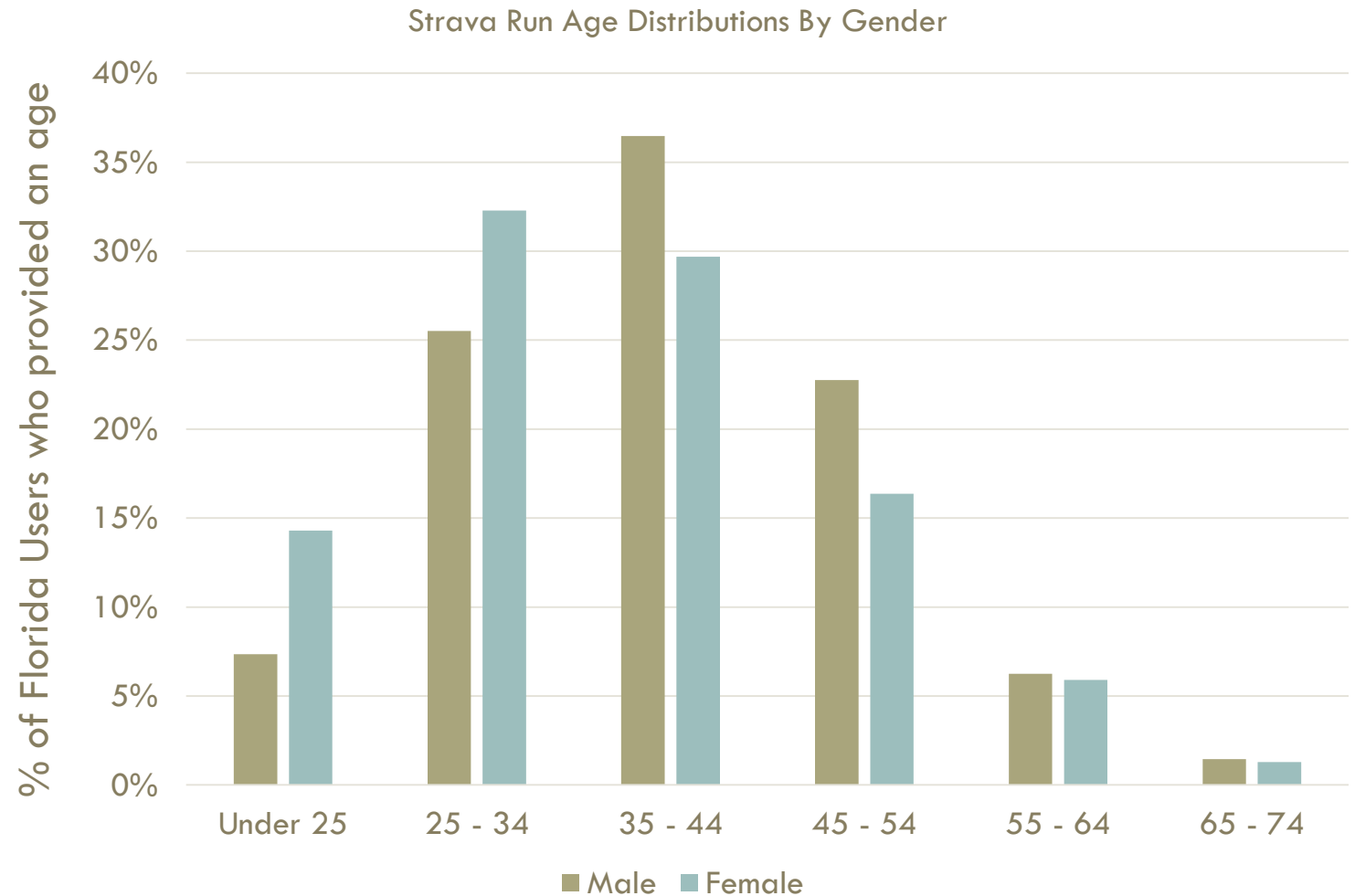
Strava Ride Age Distributions By Gender




# RUN DATA CHARACTERISTICS — 2015

## Run

- 507,388 activities
- 3.2 mile median trip
- 37 minute median trip




# COMMUTE FLAG

●●●○ AT&T LTE 9:16 AM 

Cancel Edit Save



Name: Afternoon Ride

 Add a photo

Sport: Ride

Bike: Roadie

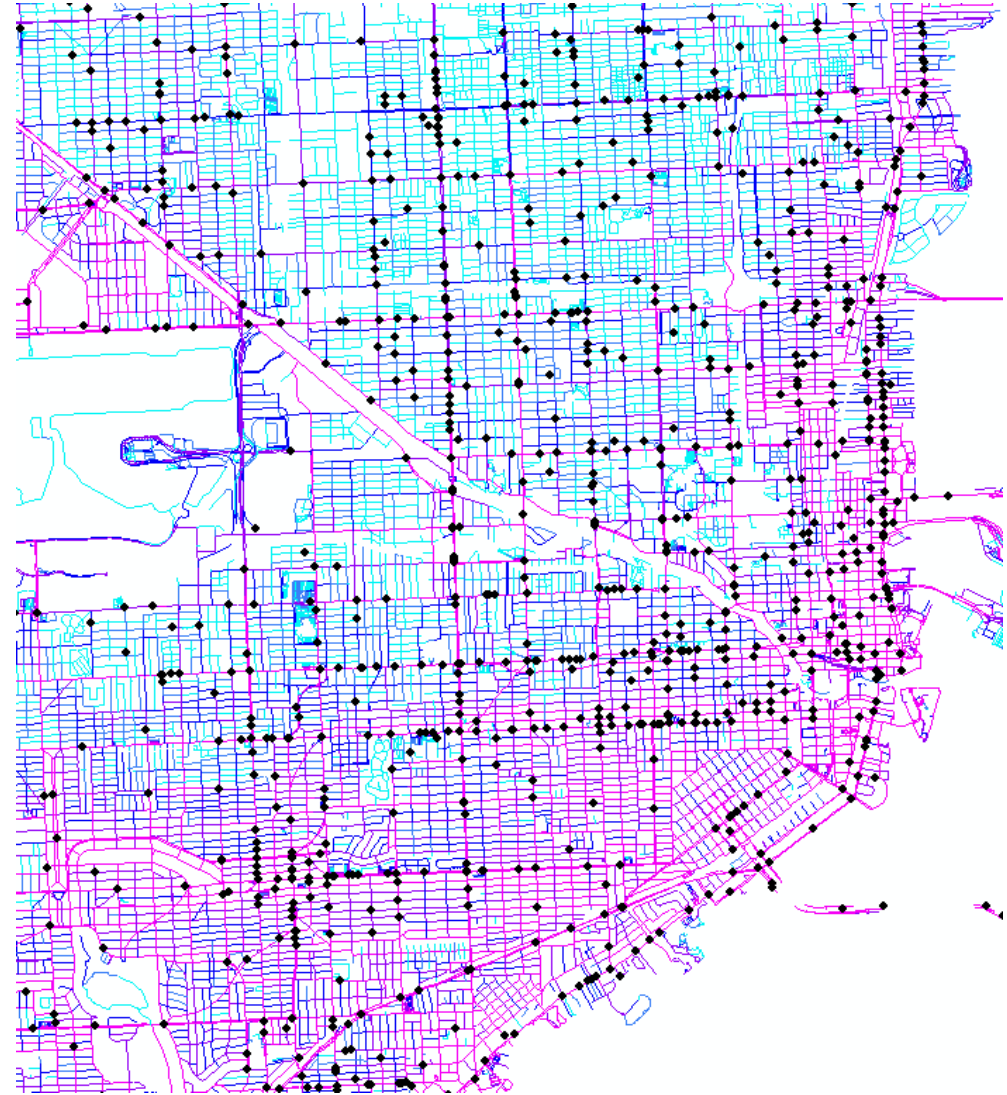
Description

☒ Commute  

# BIKE VOLUME + CRASHES

Early stages of understanding

More work / research needed





# SAMPLE DATA

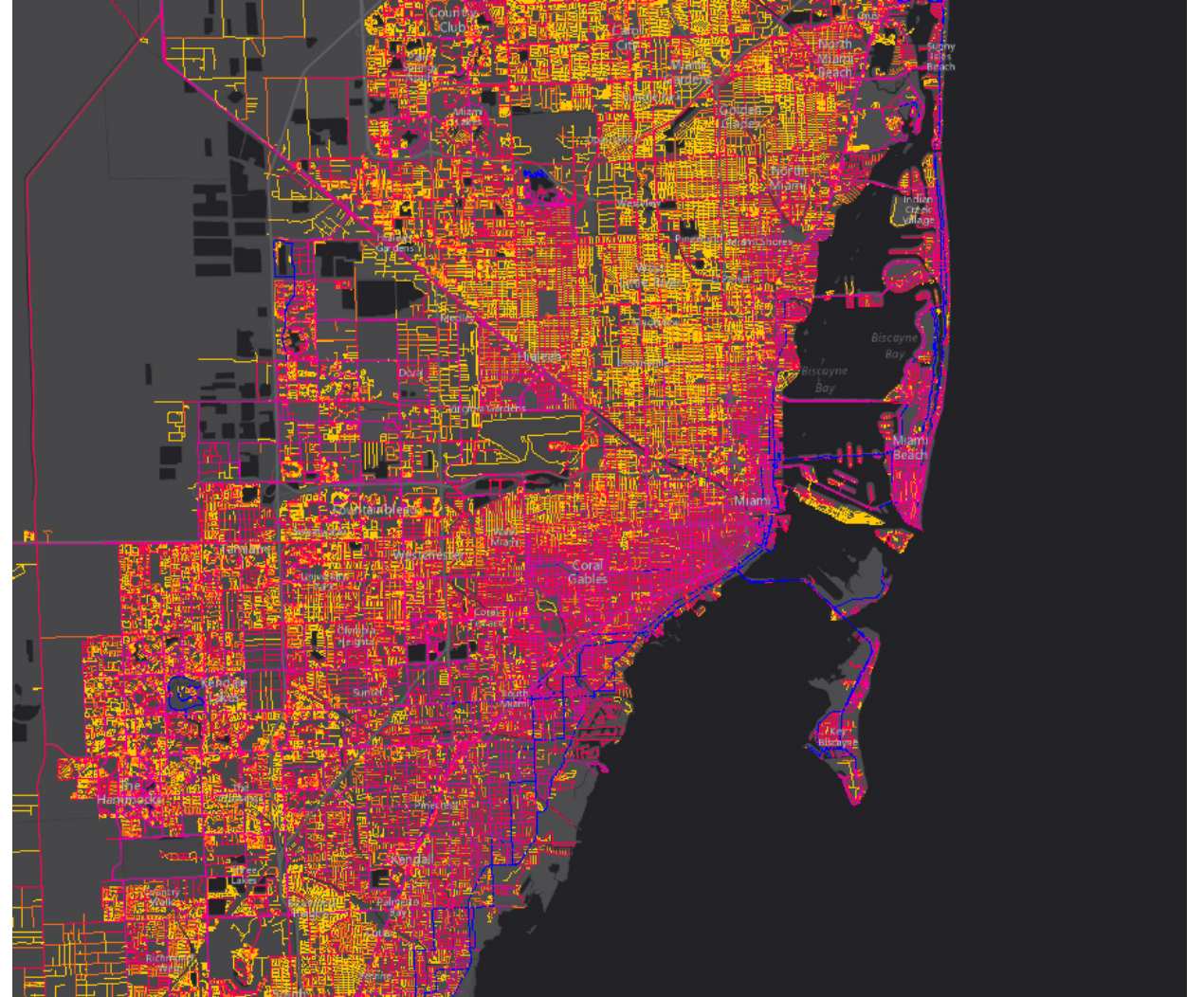
# Dade County – Ride - 2014

- Trips

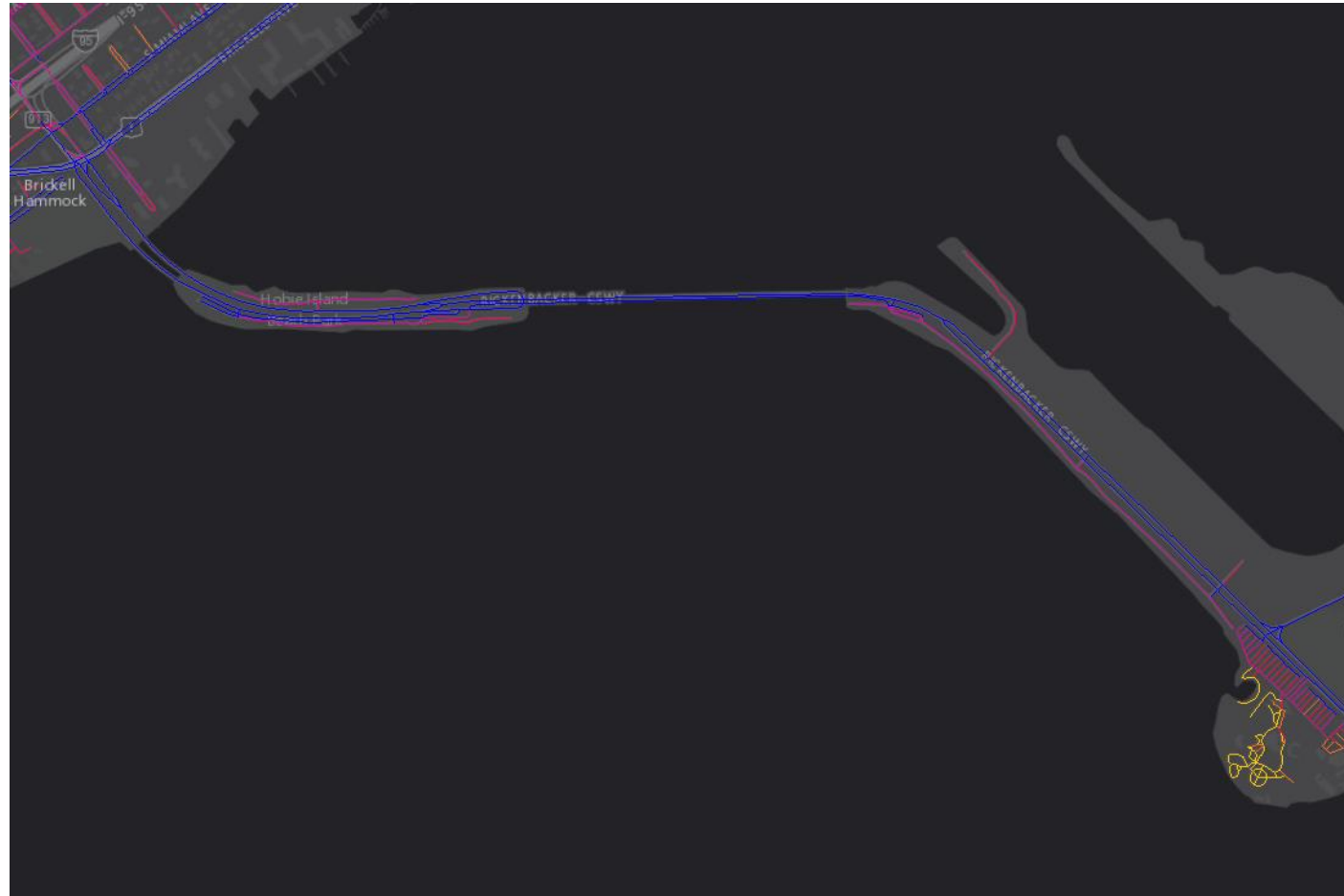
- 29,866,103 total trips on 166,000 segments
- Average 179 trips / segment
- Max 24,129 trips (Westbound Rickenbacker Causeway)

- Users

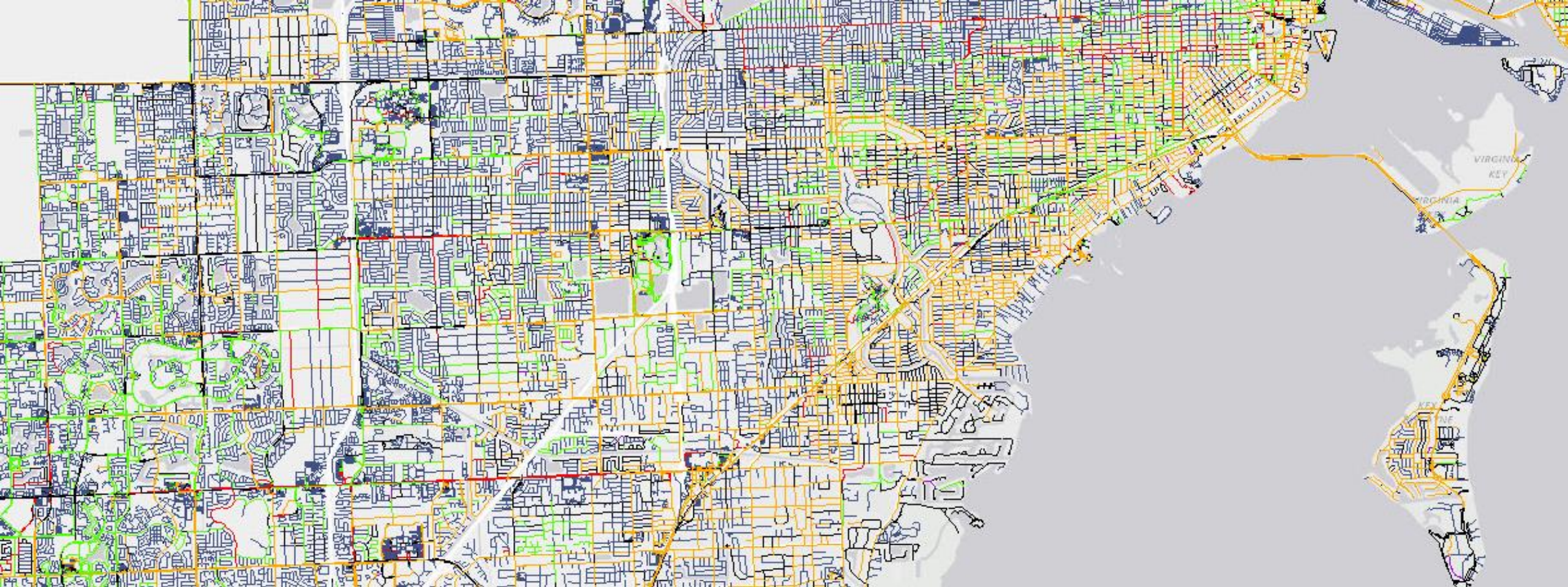
- Average 44 users / segment
- Max 2,409 users (Westbound Rickenbacker Causeway)



# RICKENBACKER CAUSEWAY







## USE BY TIME OF DAY

AM Peak (5 AM to 10 AM)

PM Peak (3 PM to 8 PM)

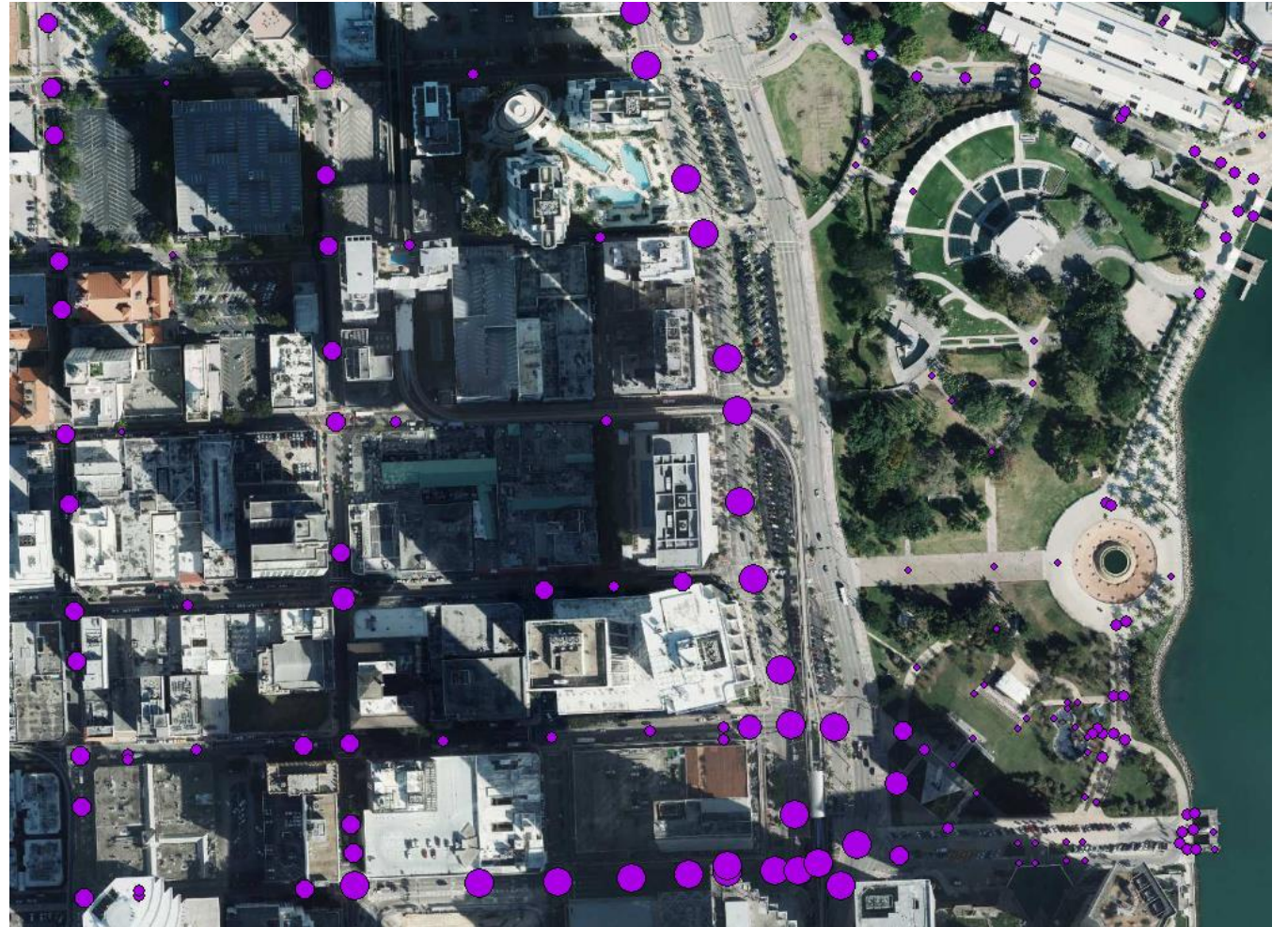
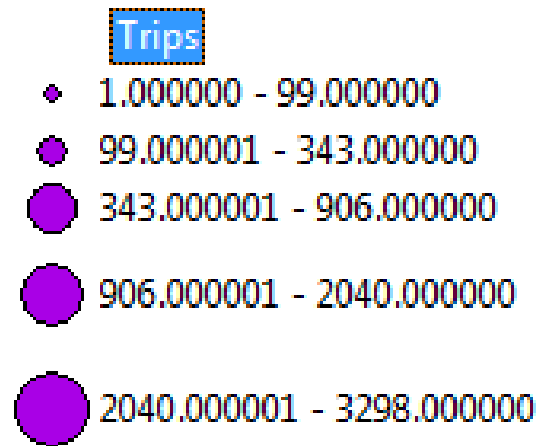
Late Night – (8 PM to Midnight)



# INTERSECTION DATA

Counts

Time Spent at Intersection



# ORIGIN / DESTINATION DATA

Morning Commute Trips to downtown Miami

Evening Commute Trips from downtown Miami

Data Characteristics:

Census Block Group

Record per trip

Origin Polygon

Destination Polygon

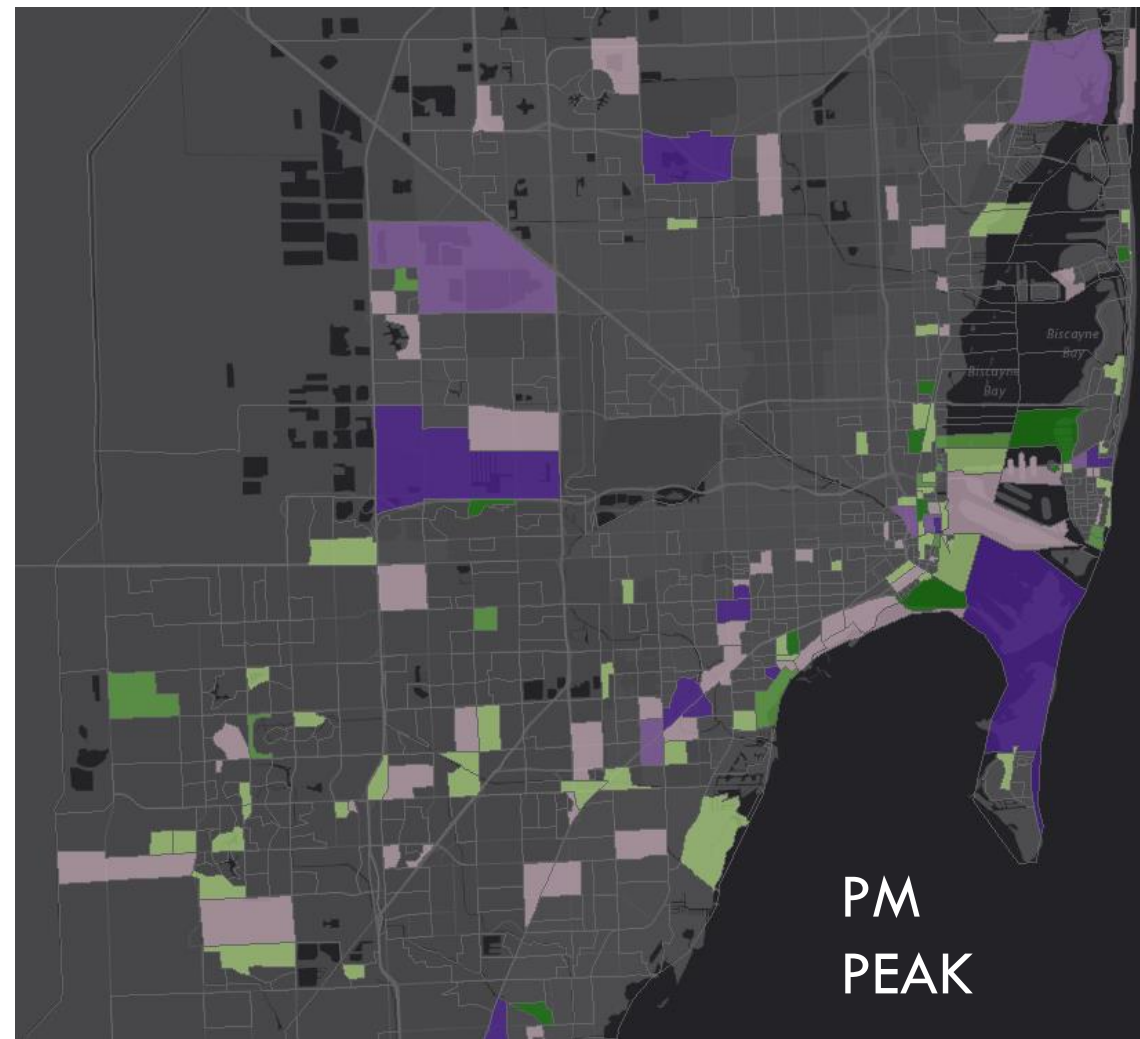
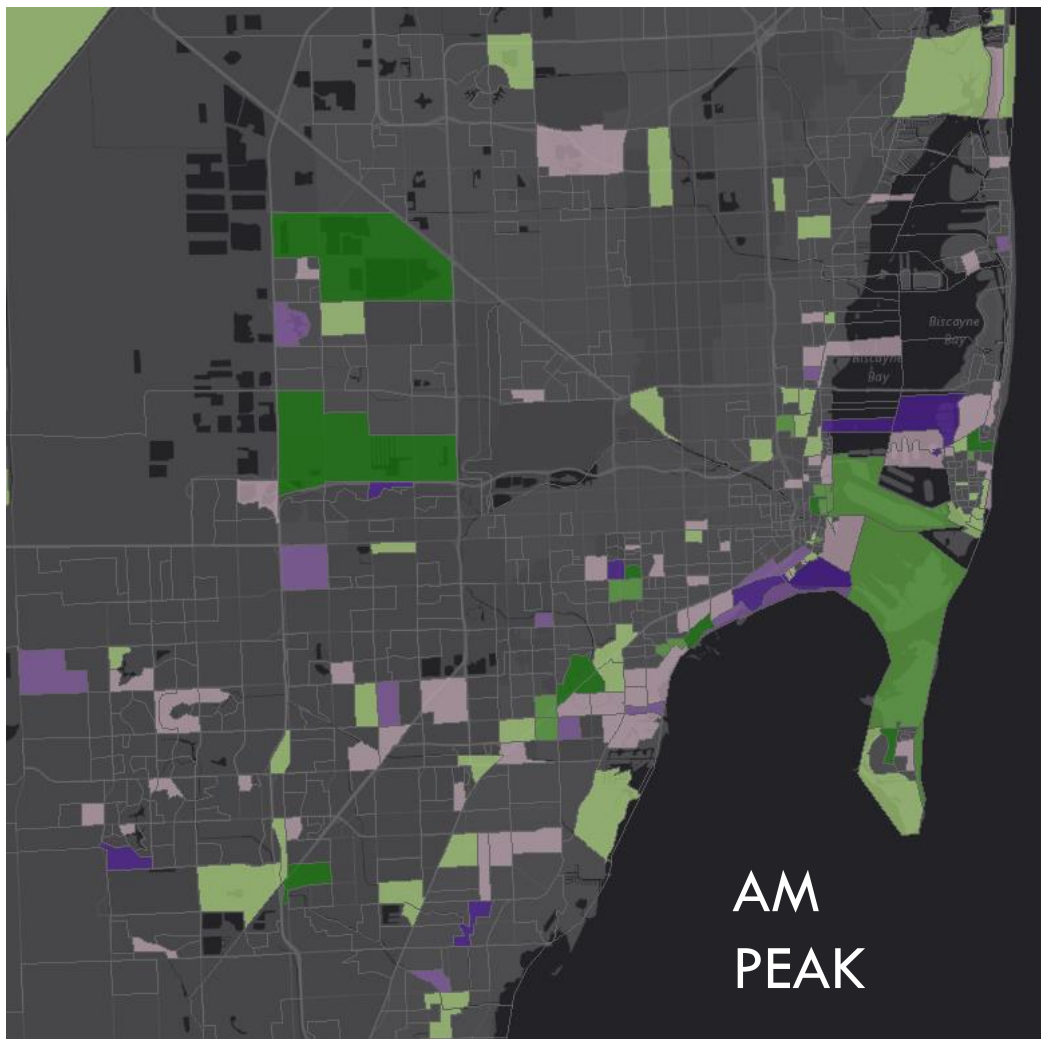
Polygon Path



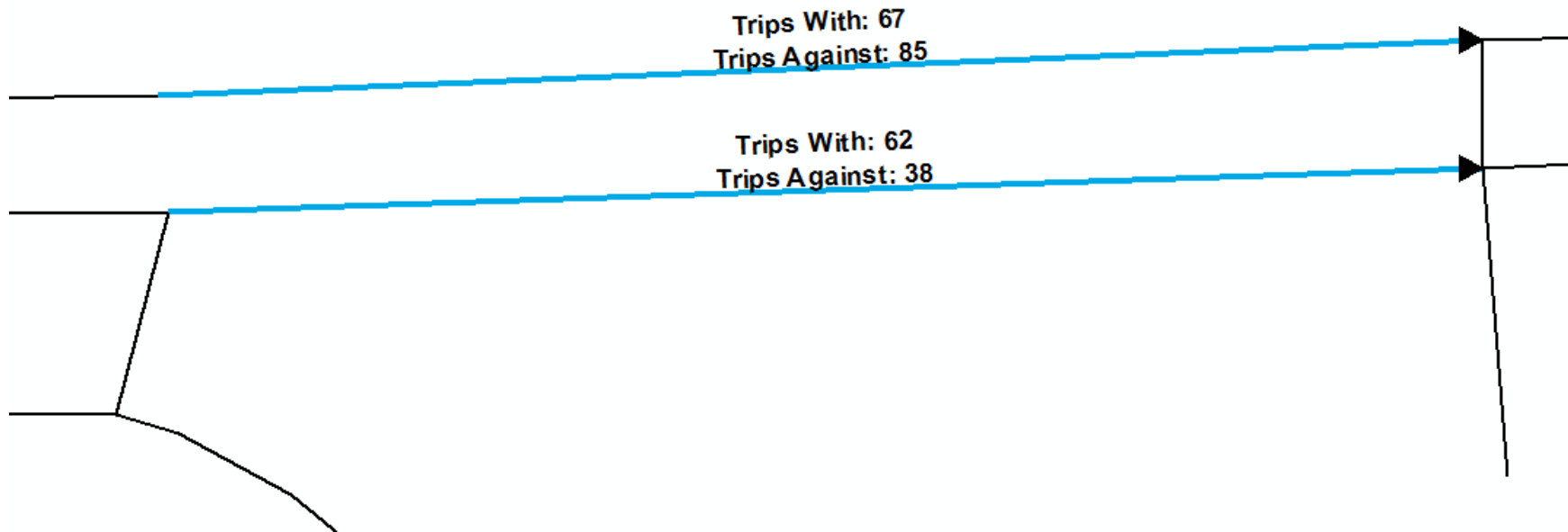


# ORIGIN / DESTINATION DATA

Negative Flow Positive Flow



# DIGITIZED DIRECTION VS. TRAVEL DIRECTION

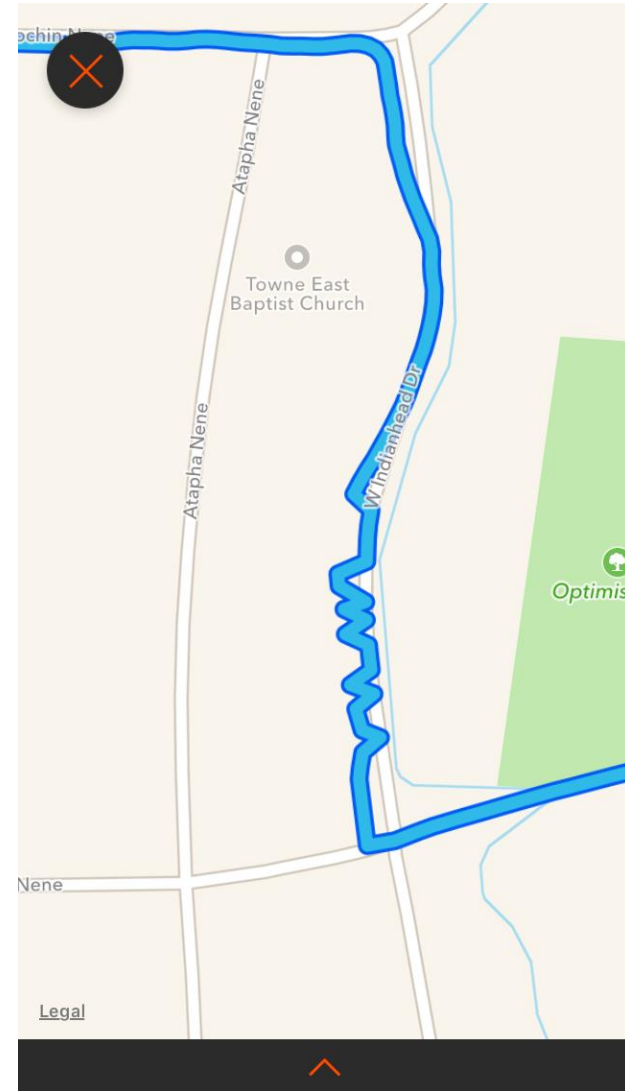


# CELL SIGNAL QUALITY

Uses cell towers, not GPS

Location accuracy is not exact

Trees, buildings and hills can impact quality





# USE CASES

Measuring relative bike volume

Estimating actual bike trips

- Data needs
- Limitations

Route choice

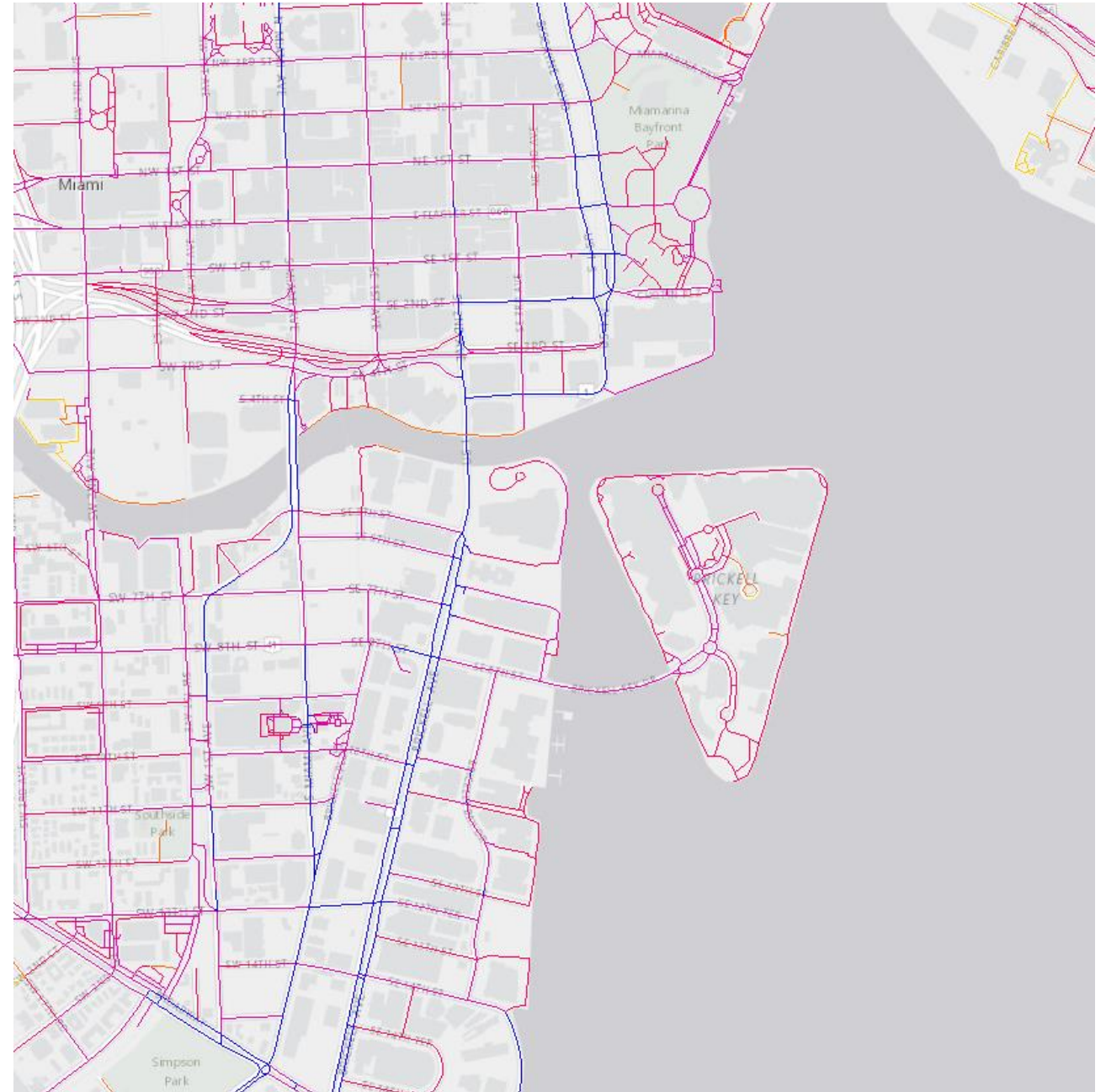
Route characteristics

Safety Analysis

# TOTAL ACTIVITY COUNT

Fewer Trips

More Trips



# ESTIMATING ACTUAL BIKE TRIPS

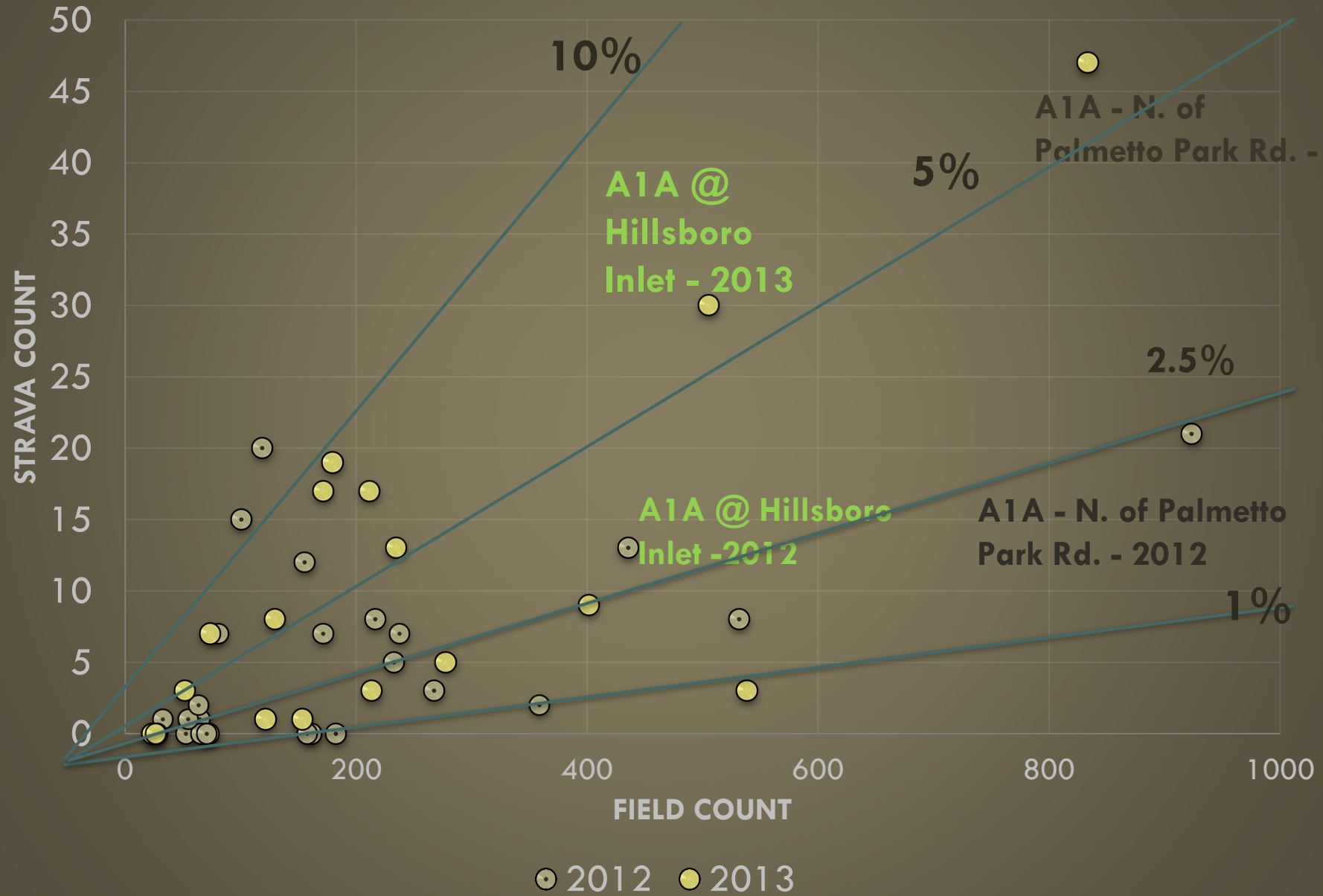
## Data Needs

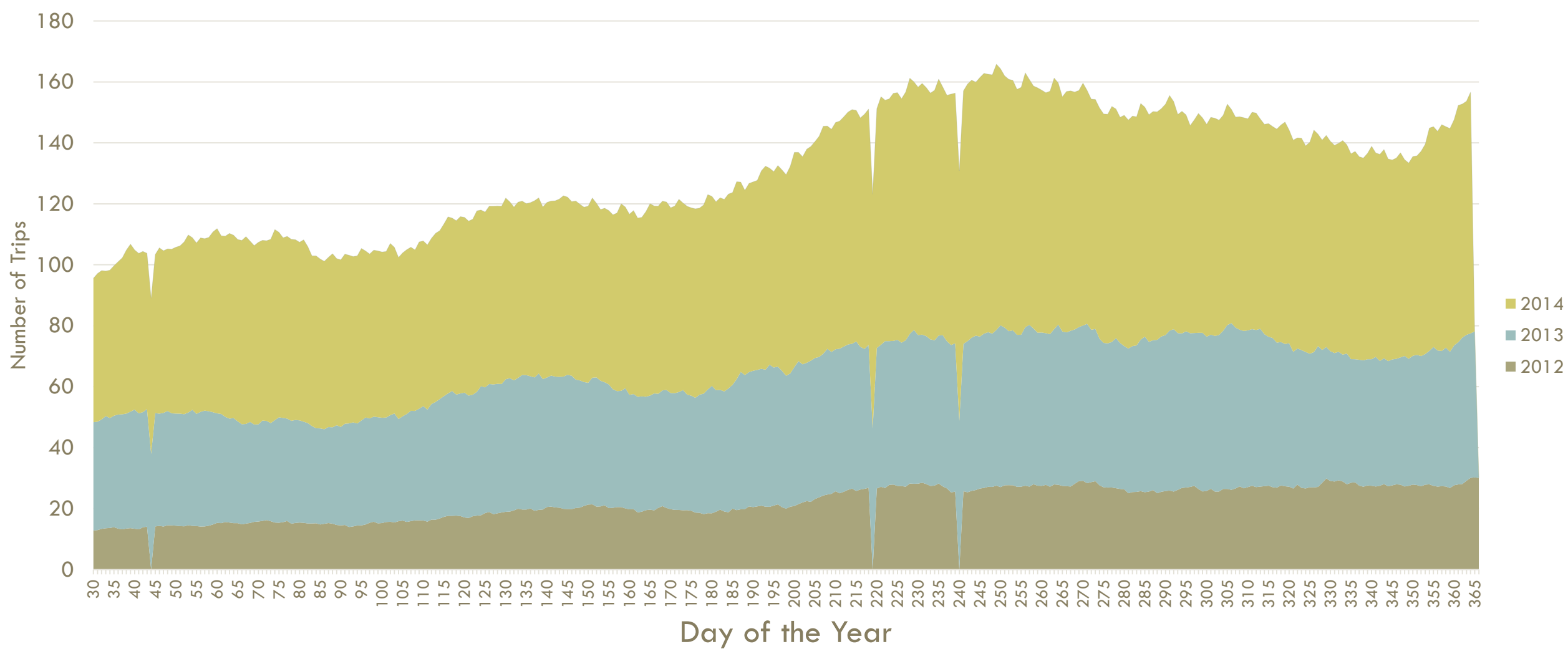
- Field Count
- Time Period
  - Time Scale
- Count Locations

## Limitations

- Market growth
- Extrapolation
- Small sample size

# Strava Bike Trips and Observed Bike Trips - District 4





# STRAVA GROWTH

Counts for Westbound  
Rickenbacker Causeway  
~2.2 X growth from 2012 to 2013  
~1.5 X growth from 2013 to 2014

# DATA CLEANING AND LIMITATIONS

## Cleaning

- Removed Trips on Limited Access Facilities
- Run Commutes

## Limitations

- User base
- Cell signal quality

Shaun Davis

Florida DOT – State Safety Office

850-414-4075 or [Shaun.Davis@dot.state.fl.us](mailto:Shaun.Davis@dot.state.fl.us)

WHAT QUESTIONS DO YOU HAVE?